

$$= \frac{1}{6} + \frac{1}{6} - \frac{1}{6} = \frac{1}{6}$$

Abstract of Disclosure

The present invention provides a DTMF decoder that combines software and hardware and the method of operating the same. The DTMF decoder that combines software and hardware comprises an amplifier, an analog to digital convert, and a CPU or a digital logic circuit. The amplified DTMF signal is converted from analog to digital via the analog to digital converter according to the present invention. Since the digital DTMF signal converted from analog to digital integrally preserves the spectrum message of the DTMF signal, the digital DTMF signal can be further decoded by the CPU or the digital logic circuit. Therefore, the decoding error problem due to the software decoding method can be solved. In addition, when compared with the DTMF decoder with the hardware decoding method, the DTMF decoder that combines software with hardware of the present invention significantly reduces the cost, and even provides better performance and more flexibility in application when compared with the hardware decoding method.

Figures